trical source 120, similarly to the flapper disclosed in Fig. 2. A spring 121 is provided, normally urging the lower portion of flapper 117 into contact with point 114 and is connected to a support 123. A brush 124, which is adapted to contact segments 111—111 in segmented ring 112, is mounted on rotatable platform 125 and is electrically connected to ring 126 by wire 135. A brush 128 contacts ring 126 and is electrically connected to point 129. Platform 125 has mounted thereon a vane 130 upstanding therefrom. The entire platform 125, ring 126, and vane 130 are supported on shaft 132, which is free to rotate in bearings (not shown).

While Fig. 4 is a schematic drawing, it is to be understood that flapper 117 is preferably positioned on platform 125, with suitable electrical connections, such as slip rings, in order to insure that flapper 117 always faces the wind due to the movement of vane 130. As with Fig. 2, to simplify an understanding of the device, in the drawing flapper 117 has been shown separately from platform 125 and vane 130.

The operation of this device in many ways parallels the operation of the device shown in Figs. 2 and 3, in that the flapper 117, segmented ring 112, and rotatable platform 125 function in much the same way as corresponding elements shown in Fig. 2. With the wind velocity below a predetermined value, the lower section 115 of flapper 117 will be in contact with point 114, thereby completing a circuit through the solenoid valve associated with container 113 and keeping that valve open. Therefore, no matter in what direction the wind blows and platform 125 rotates, all of the remaining containers 100—100, except container 113, will have their corresponding valves closed, and the valve associated with container 113 will be the only valve which is open.

When the wind velocity increases, flapper 117 will move to the position shown in dotted outline and will complete an electrical circuit from the positive side of source of electrical current 120 to point 129 and thence through line 136 to shoe or brush 128 and ring 126 to brush 124. Thereafter, depending upon the direction of the wind, one particular container of containers 100—100 will have the valve associated therewith open. In the meanwhile, solenoid valve 105 associated with container 113 will close since the circuit to that valve has been interrupted.

The opening of a solenoid valve causes a pressure differential to exist between the entrance to container 100 and the exit thereto, causing the atmospheric air to flow therethrough, and any of the desired gases, light-weight particulate material, and aerosols present will be separated by means of the particular liquid in the container. It will be apparent that if the wind velocity is below a certain value such material will only be collected in container 113, and if the wind velocity exceeds a predetermined value one of containers 100—100, associated with that wind direction, will function to collect such material.

In the modification shown in Fig. 6, valve 133 associated with container 100 has been placed on the inlet side of container 100. Since the only pressure differential needed is that necessary to overcome the head of liquid in the container, the fact that a constant vacuum is placed on the liquid in container 100 is not detrimental. Locating the valve in the position shown in Fig. 6 insures that no undesirable solid material will be blown into the opening of container 100. Otherwise, the modification shown in Fig. 6 functions exactly the same as the device shown in Figs. 4 and 5.

It should be apparent that there has been described a device which functions to collect and segregate various contaminants in the atmosphere. In the various modifications of this device, the device can function to collect solid impurities settling out of the atmosphere, or can sample gases in the atmosphere. The device functions not only to collect impurities but also to collect and segregate impurities depending upon the wind direction and the wind velocity.

By using a plurality of these devices in a large industrial area having thousands of sources of contaminants, and using them as monitoring devices, offending sources of contaminants can be readily located.

While this invention has been described in its preferred embodiment, it is understood that the words used are words of description rather than of limitation and that changes within the purview of the appended claims may be made without departing from the true scope and spirit of the invention.

What is claimed is:

1. A sampler adapted to collect certain constituents of the atmosphere; said sampler comprising a first constituent-receiving means and a plurality of second constituent-receiving means, all in relatively close proximity to one another, dual-position valve means for preventing ingress of constituents to said first constituent-receiving means and for permitting constituent accumulation in one of said second constituent-receiving means in a first valve position, and for permitting constituent accumulation in said first constituent-receiving means and for preventing ingress of constituents to all of said second constituent-receiving means in a second valve position; a wind-velocity responsive means; a wind-direction responsive means; and means, connected to said wind-velocity responsive means and said wind-direction responsive means, for actuating said valve means to said second valve position when the wind velocity is at or below a predetermined velocity, and for actuating said valve means to said first valve position when the wind velocity is above said predetermined velocity, said one of said second constituent-receiving means selected for constituent accumulation being dependent upon the wind direction.

2. A sampler adapted to collect certain constituents of the atmosphere; said sampler comprising a first constituent-receiving means and a plurality of second constituent-receiving means, all in relatively close proximity to one another, each of said constituent-receiving means being provided with an opening therein and a cover for said opening, dual position means for placing the cover of said first constituent-receiving means in closed position and for placing the cover of one of said second constituent-receiving means in open position in a first position of said dual position means, and for placing the cover of said first constituent-receiving means in open position and for placing the covers of all of said second constituent-receibing means in closed position in a second position of said dual position means; a wind-velocity responsive means; a wind-direction responsive means; means, connected to said wind-velocity responsive means and said wind-direction responsive means, for actuating said dual position means to said second position when the wind velocity is at or below a predetermined velocity, and for actuating said dual position means to said first position when the wind velocity is above said predetermined velocity, said one of said second constituent-receiving means selected to have its cover placed in open position being dependent upon the wind direction.

3. A sampler adapted to collect solid constituents of the atmosphere; said sampler comprising a rotatable shell provided with a first centrally disposed opening therein, a second opening therein adjacent the periphery thereof; closure means, responsive to the wind velocity, for closing said second opening and for permitting said first opening to remain open when the wind velocity is at or below a predetermined rate, and, alternatively, for closing said first opening and for permitting said second opening to remain open when the wind velocity is above said predetermined rate; a plurality of receptacles, each of which is provided with an opening therein, and so positioned that each of said openings may be in registration with said second opening in said shell, upon rotation thereof; a receptacle, provided with an opening therein adapted to be in registration with said first opening in said shell; and means, responsive to the wind direction, for positioning said shell with respect to said plurality of receptacles, the position of said shell being dependent upon the wind direction.

4. A sampler adapted to collect solid constituents of the atmosphere; said sampler comprising a plurality of equispaced, circumferentially positioned receptacles; a rotatable, substantially planar cover means, slightly vertically spaced above said receptacles; a receptacle, centrally positioned with respect to said receptacles, and adapted to rotate with said cover means; each of said receptacles being provided with a substantially horizontally-extending opening therein; said cover means being provided with a first opening therein adapted to be in registration with the opening in any one of said circumferentially-positioned receptacles, and said cover means being provided with a second opening therein adapted to be in registration with the opening in said centrally